

REMARKS

Claims 1-14, 23-26, 31-32, and 34-43 will be pending upon entry of the present amendment. Claims 1, 23, and 34 are being amended. Claims 33 and 44 are being canceled.

Claims 1-4, 6-14, 23-26, 31-32, and 34-43 were rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 6,127,723 to Aiello et al. ("Aiello") in view of U.S. Patent No. 6,614,633 to Kohno. Claims 33 and 44 were rejected under 35 U.S.C. 103 as being unpatentable over Aiello and Kohno in view of U.S. Patent No. 4,994,880 to Kato et al. ("Kato").

Aiello, Kohno, and Kato do not teach or suggest the invention recited in claim 1, which has been amended to include the elements of claim 33. In particular, Aiello, Kohno, and Kato do not teach or suggest that the emitter region of a first transistor extends as a comb having elongated portions inside the base region and the polysilicon region includes plural zener diodes distributed along a perimeter of the elongated portions. Kato discloses a comb-shaped emitter 35, but the Examiner does not point to any teaching in the prior art to include plural zener diodes distributed along a perimeter of the elongated portions of the emitter region. Kato do not even mention any zener diodes.

Aiello does not teach or suggest placing zener diodes along a perimeter of an elongated portion of an emitter region. Aiello shows only one zener diode (Dz1, Dz2, Dz3) in each of the embodiments of Figs. 3a, 3c, and 4a and none of those zener diodes is along a perimeter of an elongated portion of an emitter region. Aiello also mentions that the emitter 224 of transistor Th may be comb-shaped (col. 4, lines 1-7), but does not show or suggest any zener diodes along a perimeter of the emitter 224.

The Examiner also refers to the pn junction formed by regions 242 and 218 as being a zener diode, but such a pn junction 242/218 does not satisfy the claim language for two reasons. First, nothing in Aiello suggests that the pn junction 242/218 is a zener diode and it is not inherently a zener diode. A zener diode is "a semiconductor breakdown diode, usually constructed in silicon, in which reverse-voltage breakdown is based on the zener effect," and the zener effect is "nondestructive breakdown in a semiconductor, occurring when the electric field across the barrier region becomes high enough to produce a form of field emission that suddenly increases the number of carriers in this region." McGraw-Hill Dictionary of Scientific and

Technical Terms, page 2187, Fifth Edition, McGraw-Hill (1994) (Copy attached to Appeal Brief). Nothing in Aiello or the known skill in the art suggests that the base-collector junctions of the transistors Td1, Th, diode D1, transistor Td1, or transistor Td2 exhibit reverse-voltage breakdown based on the zener effect.

Second, even if one were to believe that the PN junction 242/218 was a zener diode, that PN junction is still not distributed along a perimeter of an emitter. Instead, the PN junction 242/218 is the base-collector junctions of a transistor Td1 shown in Figure 2a of Aiello. The region 242 is centrally located within the emitter 218.

Kohno also does not teach or suggest placing zener diodes along a perimeter of an elongated portion of an emitter region. Kohno includes many figures (see 1, 3, 6-7, 9, 22-23, 25-30, etc) with schematic circuit diagrams showing plural zener diodes, but such schematic diagrams do not suggest any relative positioning of the zener diodes with respect to any emitter. Also, the clamping zener diodes 3 of Figure 22 of Kohno are employed in cooperation with a FET 2 without any suggestion of a benefit of positioning the zener diodes anywhere near the emitter of the parasitic transistor 2a.

Without any of the cited references suggesting positioning any zener diodes along a perimeter of any emitter, the cited prior art as a whole cannot teach or suggest plural zener diodes distributed along a perimeter of elongated portion of a comb-shaped emitter. Accordingly, claim 1 is nonobvious in view of the cited prior art.

Claims 2-14 depend on claim 1, and thus, are also nonobvious in view of the prior art.

Although the language of amended claims 23-26, 31-32, and 34-43 is not identical to that of claim 1, the nonobviousness of claims 23-26, 31-32, and 34-43 will be apparent in view of the above discussion.

Application No. 10/032,289
Reply to Office Action dated December 16, 2004

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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